CLAIMS

1. A tower (40) to support a wind-driven power-plant comprising an equipment nacelle (30) affixed to the tower (40) and a rotor (20) resting on the equipment nacelle in a manner to be rotatable about a substantially horizontal axis, said rotor being fitted with at least one rotor blade (22), said tower comprising an upper, tubular tower segment (46) which is connected in a transition zone to a lower tower segment (41) in the form of a lattice tower (42), said lattice tower comprising at least three corner posts (43)

characterized

in that the upper tower segment (46) constitutes at least one sixth of the entire tower, in that the cross-section of the lower tower segment (41) underneath the transition zone is larger than the cross-section of the upper tower segment (46), and in that the transition zone is designed in a manner that the cross-section of the lower tower segment is matched in force-optimized manner to the cross-section of the upper tower segment.

2. Wind-driven power-plant tower (40) as claimed in claim 1, characterized in that the vertical expanse of the transition zone is at least half the upper tower segment's diameter in the transition zone or immediately adjoining it.

3. Wind-drive power-plant tower (40) as claimed in the preceding claim, characterized in that the transition zone tapers upward from the cross-section of the lower tower segment (41) as far as the cross-section of the upper tower segment (46).

4. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the transition zone is constituted by a transition unit (50) comprising a lower region (70) connectable to the lower tower segment (41) and an upper region (60) connectable to the upper tower segment (46).

5. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the transit unit's lower region (70) is designed in a manner that its largest horizontal expanse is at least 30 %, preferably larger than 50 % than its horizontal expanse in the upper region (60),

6. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the tower (40) is designed in a manner that the transition unit (50) is configured underneath the horizontal plane (25) defined by the blade tip (23) when the rotor blade (22) is down in the vertical.

7. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the upper region (60) of the transition zone (50) is designed in a manner that the transition unit (50) is connected by a detachable connection means (61) to the upper tower segment (46).

8. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the lower region (70) of the transition unit (50) is designed in a manner that the transition unit (50) can be connected with each corner post (43) of the lattice tower (42) by means of a detachable connection means (71).

9. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the detachable connection means (61) between the upper region (60) of the transition unit (50) and the upper tower segment (46) comprises a two-row screw flange (64) mounted on the transition unit (50) as the connection site and a T-flange (62) mounted on the upper tower segment (46).

10. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the lower region (70) of the transition unit (50) comprises connection sites (72) for plate junctions (71) to the corner posts (43) of the lattice tower (42).

11. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the built height of the transition unit (50) is limited by the overpass height beneath bridges and is between 2 and 6 m, preferably between 4 and 5.5 m.

12. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the transition unit (50) consists of at least two sub-units (57, 58) preferably detachably connected to each other at the connection site 56.

13. Wind-driven power-plant tower (40) as claimed in the above claim, characterized in that the transition unit (50) comprises at least one vertical partition plane.

14. Wind-driven power-plant (40) as claimed in claim 12, characterized in that the transition unit (50) comprises at least one horizontal partition plane.

15. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the transition unit (50) or a sub-unit (57, 58) of the transition unit (50) is designed in a manner that, by means of adapter elements which are mounted on the extant connection sites (56, 64, 72) or on connection sites of their own for that purpose, said unit or sub-unit can be transported on a low-loader trailer.

16. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the transition unit (50) or the sub-units (57, 58) of the transition unit (50) is/are designed in a manner that the transportation of several transition unit(s) (50) or transi-

tion sub-units (57, 58) connected directly or indirectly to each other can be carried out by a low-loader trailer.

17. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the transition unit (50) comprises a wall (52) and is made in the shell mode of construction.

18. Wind-driven power-plant tower (40) as claimed in the preceding claim, characterized in that the basic shape of the transition unit (50) is substantially a markedly conical tube, the mean slant (γ) of the conical tube (52) relative to the center axis being larger than that (α) of the wall (48) of the lower region of the tubular tower (47) and/or than the slant (β) of the upper region of the lattice tower corner posts (43) .

19. A wind-driven power-plant tower (40) as claimed in the preceding claim, characterized in that the mean slant (γ) of the wall (52) of the transition unit (50) relative to the center axis is at least 15, preferably more than 25°.

20. A wind-driven power-plant tower (40) claimed in one of the above claims, characterized in that the transition unit (50) smoothly merges, from a substantially circular cross-section in the upper region (60), into a polygonal, preferably triangular or tetragonal cross-section in the inner region (70).

21. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the wall (52) of the transition unit (50) is fitted with at least one clearance (53).

22. Wind-driven power-plant tower (40) as claimed in the preceding claim, characterized in that the minimum of one clearance (53) is archway-shaped and in that this archway-shaped clearance (53) runs from corner post (43) to corner post (43).

23. Wind-driven power-plant tower (40) as claimed in the preceding claim, characterized in that the minimum of one archway-shaped clearance is fitted with ribbed or archway-like rigidifying means (55).

24. Wind-driven power-plant (40) as claimed in one of the above claims, characterized in that horizontal supports (45) are configured in the lower region (70) of the transition unit (50) between the corner posts (43) of the lattice tower (42) and connect to each other the adjacent corner posts (43) and/or the (diagonally) opposite corner posts (43) .

25. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the lattice tower (42) comprises at least four corner posts (43) and the transition unit (50) is fitted with ribs bracing the lines of connection of mutually opposite corner posts (43) (diagonals).

26. Wind-driven power-plant as claimed in one of the above claims, characterized in that the transition unit (50) is a cast sub-assembly.

27. Wind-driven power-plant tower (40) as claimed in one of the above claims characterized in that the wall (52) of the transition unit (50) curves convexly when seen in vertical cross-section.

28. Wind-driven power-plant tower (40) as claimed in the preceding claim, characterized in that the slant of the connection sites (72) in the lower region (70) of the transition

unit (50) corresponds to the slant of the upper region of the corner posts (43) of the lattice tower (42).

29. Wind-driven power-plant tower (40) as claimed in one of the above claims, characterized in that the transition unit (50) is a welded sub-assembly.

30. Wind-driven power-plant tower (40) as claimed in claim 1, characterized in that the tower segment (41) in the form of a lattice tower (42) comprises several superposed sections and that one section each time comprises the corner posts (43) and at least one strut means (44) running diagonally between the corner posts.

31. Wind-driven power-plant tower (40) as claimed in the preceding claim, characterized in that the slope of the diagonal strut means is identical in all sections.

32. Wind-driven power-plant tower (40) as claimed in claim 1, characterized in that cables connecting said power-plant to the electrical grid run inside the corner posts (43) designed as hollow construction shapes.

33. Wind-driven power-plant as claimed in the preceding claim, characterized in that cable-protecting pipes receiving the cables run inside the corner posts (43).

34. A modular tower system for a wind-driven power-plant preferably as claimed in one of the above claims, in the form of an upper, substantially tubular tower segment and of various lower tower segments in the form of a lattice tower,

characterized

in that the total tower height is variable by selecting different lattice tower heights.